

PATENT COOPERATION TREATY

PCT

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference FIS920020099	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US02/41396	International filing date (day/month/year) 23 December 2002 (23.12.2002)	Priority date (day/month/year)
International Patent Classification (IPC) or national classification and IPC IPC(7): H04B 1/10; H03B 21/00; H03H 7/30 and US Cl.: 375/232, 233, 350; 331/18; 341/144		
Applicant INTERNATIONAL BUSINESS MACHINES		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of ___ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of report with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☒ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 13 July 2004 (13.07.2004)	Date of completion of this report 05 August 2004 (05.08.2004)
Name and mailing address of the IPEA/US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703)305-3230	Authorized officer Lawrence B Williams Telephone No. 703-305-4750

Form PCT/IPEA/409 (cover sheet)(July 1998)

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I. Basis of the report

1. With regard to the elements of the international application:*

☒ the international application as originally filed.☒ the description:

pages 1-7 _____ as originally filed

pages NONE _____, filed with the demandpages NONE _____, filed with the letter of _____.☒ the claims:

pages 8-12 _____, as originally filed

pages NONE _____, as amended (together with any statement) under Article 19pages NONE _____, filed with the demandpages NONE _____, filed with the letter of _____.☒ the drawings:

pages 1-2 _____, as originally filed

pages NONE _____, filed with the demandpages NONE _____, filed with the letter of _____.☐ the sequence listing part of the description:pages NONE _____, as originally filedpages NONE _____, filed with the demandpages NONE _____, filed with the letter of _____.

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).☐ the language of publication of the international application (under Rule 48.3(b)).☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in printed form.☐ filed together with the international application in computer readable form.☐ furnished subsequently to this Authority in written form.☐ furnished subsequently to this Authority in computer readable form.☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.4. ☐ The amendments have resulted in the cancellation of:☐ the description, pages NONE☐ the claims, Nos. NONE☐ the drawings, sheets/fig NONE5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

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V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. STATEMENT

Novelty (N)	Claims <u>1-10</u>	YES
	Claims <u>NONE</u>	NO
Inventive Step (IS)	Claims <u>1-10</u>	YES
	Claims <u>NONE</u>	NO
Industrial Applicability (IA)	Claims <u>1-10</u>	YES
	Claims <u>1-10</u>	NO

2. CITATIONS AND EXPLANATIONS

Claims 1-10 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest a band-pass delta sigma truncator or a method for truncating a multi-bit digital signal comprising means for: (a) delaying by a period of time equal to the time between successive first multi-bit digital signals each of the fifth multi-bit digital signals, and (b) delaying by a period of time equal to twice the time between successive first multi-bit digital signals each of the fifth multi-bit digital signals and inverting the fifth multi-bit digital signals that have been delayed by a period of time equal to twice the time between successive first multi-bit digital signals; means for multiplying by a multiplier number related to the ratio of a selected frequency to the frequency of the first multi-bit digital signals each of the fifth multi-bit digital signals delayed by a period of time equal to the time between successive first multi-bit digital signals and developing a series of sixth multi-bit digital signals having a number of data bits that is the product of the multiplier number and the number of data bits in the fifth multi-bit digital signals along with the remaining limitations as cited in claims 1 and 8.

Claims 1-10 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

----- NEW CITATIONS -----

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VI. Certain documents cited

1. Certain published documents (Rule 70.10)

Application No Patent No.	Publication Date (day/month/year)	Filing Date (day/month/year)	Priority date (valid claim) (day/month/year)
US 6,304,608 B1	16 October 2001 (16.10.2001)	04 November 1998 (04.11.1998)	None
US 6,513,055 B1	28 January 2003 (28.01.2003)	29 October 1999 (29.10.1999)	None
US 5,424,739 A	13 June 1995 (13.06.1995)	21 December 1993 (21.12.1993)	None
US 5,682,161 A	28 October 1997 (28.10.1997)	20 May 1996 (20.05.1996)	None
US 6,373,418 B1	16 April 2002 (16.04.2002)	25 May 2000 (25.05.2000)	None

2. Non-written disclosures (Rule 70.9)

<u>Kind of non-written disclosure</u>	<u>Date of non-written disclosure</u> (day/month/year)	<u>Date of written disclosure referring to</u> <u>non-written disclosure</u> (day/month/year)
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VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

The drawings are objected to under PCT Rule 66.2(a)(iii) as containing the following defect(s) in the form or content thereof: The application has been filed with informal drawings..